What is Claimed is:

1. A positive electrode active material containing lithium composite manganese oxide having spinel structure for a non-aqueous electrolyte cell whose primary particle diameter is not less than 0.05 μm and not greater than 10 μm, forming an aggregate, and whose specific surface measured by the BET method is not less than 0.2 m^2/g and not greater than 2 m^2/g.

2. A positive electrode active material as claimed in Claim 1, wherein said lithium composite manganese active material is expressed by a general formula $Li_xMn_{2-y}M_yO_4$ (wherein $0.90 \leq x \leq 1,4$, $y \leq 0.30$, and M is one ore more materials selected from a group consisting of Ti, V, Cr, Fe, Co, Ni, and Al).

3. A production method of a positive electrode active material for a non-aqueous electrolyte cell, wherein a starting raw material of lithium composite manganese oxide is mixed with a predetermined composition, molded with a pressure, and sintered at a temperature not lower than 600°C and not higher than 900°C.

4. A non-aqueous electrolyte secondary cell comprising:

a positive electrode containing as a positive electrode active material a lithium composite manganese oxide having spinel structure and whose primary particle diameter is not less than 0.05 μm and not greater than 10 μm, forming an aggregate,

and whose specific surface measured by the BET method is in a range not less than 0.2 m^2/g and not greater than 2 m^2/g,

a negative electrode, and

an electrolyte.

5. A non-aqueous electrolyte secondary cell as claimed in Claim 4, wherein the negative electrode contains a material capable reversively doping and dedoping lithium.

6. A non-aqueous electrolyte secondary cell as claimed in Claim 5, wherein the material capable of reversibly doping and dedoping lithium is at least one selected from a group consisting of a carbon material, metal lithium, lithium alloy, polyacene, and polypyrol.

7. A non-aqueous electrolyte secondary cell as claimed in Claim 6, wherein the carbon material is at least one selected from a group consisting of pyrocabon, coke, glassy carbon, organic polymer compound sintered body, and carbon fiber.

8. A non-aqueous electrolyte secondary cell as claimed in Claim 4, wherein the electrolyte is at least one selected from a group consisting of $LiClO_4$, $LiAsF_6$, $LiPF_6$, $LiBF_4$, $LiB(C_6H_5)_4$, LiCl, LiBr, CH_3SO_3Li, and CF_3SO_3Li.

9. A non-aqueous electrolyte secondary cell as claimed in Claim 4, wherein the electrolyte is dissolved in an organic solvent which is at least one selected from a group consisting of propylene carbonate, ethylene carbonate, 1, 2-dimethoxyethane, γ-butyrolactone, tetrahydrofuran, 2-methyltetrahydrofuran, 1, 3-dioxolane, sulfolane, acetonitrile, diethyl carbonate, and dipropyl carbonate.